

proved decisions that can be explained and justified both internal to their organizations and externally to other organizations and the public.

Importantly, these SETAC and ISO clarifications should help make LCA a more credible environmental technique. For example, LCA will not be misrepresented as analyzing environmental *effects*, and the different technical difficulties will be more transparent to decision makers and other audiences. This should reduce the number of disputes over LCA interpretation and place behind us some of the debates of the last few years. At the same time, we should also recognize that both ISO and SETAC have reemphasized the core benefits of LCA that were never in dispute: 1) quantifying material and energy efficiency for a system, 2) identifying improvement opportunities and trade-offs, 3) illuminating hidden or unrecognized issues, and 4) promoting a wider and more rational communication among stakeholders about how to compare and improve highly complex and difficult to analyze industrial systems.

7 References

- ILSI (1996): Human Health Assessment and Life-cycle Assessment: Analysis by an Expert Panel. Panelists: T.A. Burke, J. Doull, T.E. McKone, D.J. Paustenbach, R. Scheuplein, H.A. Udo de Haes, and J.L. Young. Health and Environmental Sciences Institute, International Life Sciences Institute, Washington, DC. June 7-9, 1995
- ISO (1997): Environmental management – Life cycle assessment – principles and framework. TC 207/SC 5 ISO 14040-97
- ISO (1998a): Environmental management – Life cycle assessment – Life cycle goal and scope definition and inventory analysis. TC 207/SC 5 ISO 14041-98
- ISO (1998b): Environmental management – Life cycle assessment – Life cycle impact assessment. TC 207/SC 5 DIS 14042
- OECD (1994): Environmental indicators: OECD core set. ISBN 92-64-04263-6. Organization for Economic Co-operation and Development, Paris
- OWENS, J.W. (1998): Life cycle impact assessment: The use of subjective judgements in classification and characterization. *Int. J. LCA* 3(1):43-46
- POTTING, J., W. SCHÖPP, K. BLOK and M. HAUSCHILD (1998): Site-dependent life-cycle impact assessment of acidification. *J. Ind. Ecol.* 2:63-87
- SETAC (1993a): Guidelines for life-cycle assessment: A 'Code of Practice.' Eds.: F. Consoli, D. Allen, I. Boustead, J. Fava, W. Franklin, A.A. Jensen, N. de Oude, R. Parrish, R. Perriman, D. Postlethwaite, B. Quay, J. Séguin and B. Vigon. Proceedings of a workshop in Sesimbra, Portugal. Society of Environmental Toxicology and Chemistry, Pensacola, FL. March 31-April 3, 1993
- SETAC (1993b): A conceptual framework for life-cycle impact assessment. Eds.: J. Fava, F. Consoli, R. Denison, K. Dickson, T. Mohin and B. Vigon. Proceedings of a workshop in Sandestin, FL, USA. Society of Environmental Toxicology and Chemistry, Pensacola, FL. February 1-7, 1992
- SETAC (1997): Life cycle impact assessment. The state-of-the-art. Report of the SETAC work group on LCA impact assessment. Eds.: Barnhouse, L., J. Fava, K. Humphreys, R. Hunt, L. Laibson, S. Noesen, J. Owens, J. Todd, B. Vigon, K. Weitz, and J. Young. Society of Environmental Toxicology and Chemistry, Pensacola, FL
- UDO DE HAES, H., and J.W. OWENS (1998): Evolution and development of the conceptual framework and methodology of life cycle impact assessment. Summary of SETAC and SETAC-Europe work groups on life cycle impact assessment. Society of Environmental Toxicology and Chemistry, Pensacola, FL

Received: November 25th, 1998
Accepted: January 29th, 1999

Forthcoming Articles (No. 3, May 1999)

Editorial

The Status of LCA in the U.S.A.
M.A. CURRAN

Letters to the Editor

Long-Term Emissions from Landfills Should Not be Disregarded
G. FINNVEDEN, P.H. NIELSEN

LCA in Japan

Analysis of the Potential for a Comprehensive Approach
Towards LCA and EMS in Japan
M. FINKBEINER, K. SAUR, P. EYERER, Y. MATSUNO, A. INABA

LCA Case Studies

Life Cycle Assessment as a Tool for Improving Process
Performance:
A Case Study on Boron Products
A. AZAPAGIC, R. CLIFT

State of the Art

Cumulative Energy Demand for Selected Renewable Energy
Technologies
D. GÜRZENICH, J. MATHUR, N.K. BANSAL, H.-J. WAGNER

LCA Methodology

Estimates of Real Damage from Air Pollution:
Site Dependence and Simple Impact Indices for LCA
J.V. SPADARO, A. RABL

An Integrated Approach for Environmental Assessments
Linking and Integrating LCI, Environmental Fate Models and
Ecological Impact Assessment Using Fuzzy Expert Systems
CHR. THIEL, R. SEPPELT, W. MÜLLER-PIETRALLA, O. RICHTER

A Weighting Method for the Korean Eco-Indicator
K.M. LEE

SETAC-Europe: Second Working Group on LCIA (WIA-2)
Best Available Practice Regarding Impact Categories and
Category Indicators in Life Cycle Impact Assessment

Background Document for the Second Working Group on Life
Cycle Impact Assessment of SETAC-Europe (WIA-2)

Editorial committee of WIA-2: H.A.UDO DE HAES (chairman),
O. JOLLIET (vice-chairman), G. FINNVEDEN, M. HAUSCHILD,
W. KREWITT, R. MUELLER-WENK